REVISIONS			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED

REV																				
SHEET																				
REV																				
SHEET	15	16	17	18																
REV STATUS				REV																
OF SHEETS				SHEET			1	2	3	4	5	6	7	8	9	10	11	12	13	14

PMIC N/A

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STANDARD MICROCIRCUIT DRAWING

CHECKED BY
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MICROCIRCUIT, LINEAR, LOW DROPOUT, ADJUSTABLE POSITIVE REGULATORS,

MONOLITHIC SILICON

THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE

DRAWING APPROVAL DATE
03-11-25

AMSC N/A

REVISION LEVEL

SIZE	CAGE CODE	
A	**67268**	**5962-03237**

SHEET 1 OF 18

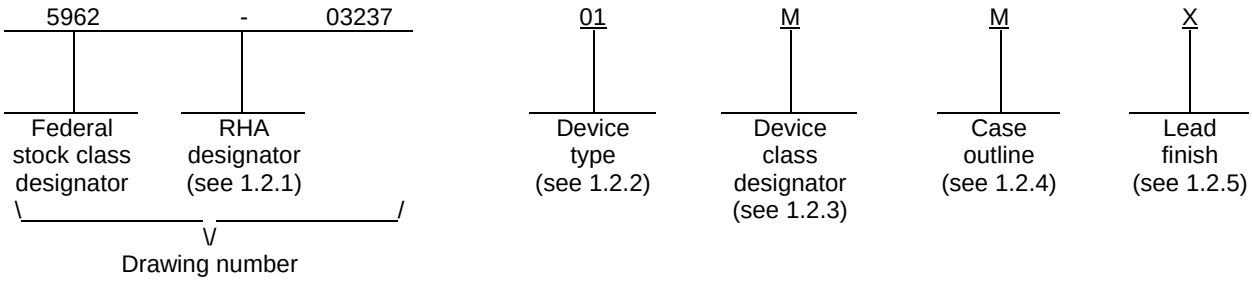
DSCC FORM 2233
APR 97

5962-E308-03

1. SCOPE

1.1 Scope. This drawing documents two product assurance class levels consisting of high reliability (device classes Q and M) and space application (device class V). A choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of Radiation Hardness Assurance (RHA) levels are reflected in the PIN.

1.2 PIN. The PIN is as shown in the following example:



1.2.1 RHA designator. Device classes Q and V RHA marked devices meet the MIL-PRF-38535 specified RHA levels and are marked with the appropriate RHA designator. Device class M RHA marked devices meet the MIL-PRF-38535, appendix A specified RHA levels and are marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

1.2.2 Device type(s). The device type(s) identify the circuit function as follows:

Device type	Generic number	Circuit function	Output current
01	OM7580	Low dropout, adjustable positive regulator	7 A
02	OM7581	Low dropout, adjustable positive regulator	10 A
03	OM7585A	Low dropout, adjustable positive regulator	5 A

1.2.3 Device class designator. The device class designator is a single letter identifying the product assurance level as follows:

Device class	Device requirements documentation
M	Vendor self-certification to the requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A
Q or V	Certification and qualification to MIL-PRF-38535

1.2.4 Case outline(s). The case outline(s) are as designated in MIL-STD-1835 and as follows:

Outline letter	Descriptive designator	Terminals	Package style
M	CBCC2-N3	3	Surface mount
T	MSFMI-P3	3	TO-257AA flange mount with isolated tab, glass sealed
U	See figure 1	3	SMD-257A flange mount, glass sealed
X	See figure 1	6	Power surface mount
Y	See figure 1	5	Flange mount with isolated tab with glass sealed
Z	See figure 1	6	Power surface mount

1.2.5 Lead finish. The lead finish is as specified in MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

1.3 Absolute maximum ratings. 1/

Output current (I_{LOAD}):
- Device type 01 ..... 7 A
- Device type 02 ..... 10 A
- Device type 03 ..... 5 A

Power input voltage (V_{IN}) power:
- Device types 01 and 02 ..... +6 V

Power input voltage (V_{IN}) control:
- Device types 01 and 02 ..... +13 V

Power input voltage (V_{IN}):
- Device type 03 ..... +7 V

Power dissipation (P_D): T_C = +25°C
- Device type 01 ..... 20 W
- Device type 02 ..... 20 W
- Device type 03, case M ..... 27.2 W
- Device type 03, cases T and U ..... 26.5 W

Operating junction temperature range (T_J) ..... -55°C to +125°C

Storage temperature range ..... -65°C to +150°C

Lead temperature (T_L) (soldering 10 seconds) ..... +300°C

Thermal resistance, junction to case (θ_{JC})
- Case outline M ..... 4.6°C/W
- Case outlines T and U ..... 5.0°C/W
- Case outline X ..... 5.0°C/W
- Case outline Y ..... 5.0°C/W
- Case outline Z ..... 5.0°C/W

1.4 Recommended operating conditions.

Output voltage range (V_{OUT}) ..... 1.8 V to 5.5 V

Ambient operating temperature range (T_A) ..... -55°C to +125°C

2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, and handbooks. The following specification, standards, and handbooks form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-PRF-38535 - Integrated Circuits, Manufacturing, General Specification for.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-883 - Test Method Standard Microcircuits.
MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

HANDBOOKS

DEPARTMENT OF DEFENSE

MIL-HDBK-103 - List of Standard Microcircuit Drawings.
MIL-HDBK-780 - Standard Microcircuit Drawings.

(Unless otherwise indicated, copies of the specification, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device classes Q and V shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein. The individual item requirements for device class M shall be in accordance with MIL-PRF-38535, appendix A for non-JAN class level B devices and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein for device classes Q and V or MIL-PRF-38535, appendix A and herein for device class M.

3.2.1 Case outlines. The case outlines shall be in accordance with 1.2.4 herein and figure 1.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.3 Electrical performance characteristics and post irradiation parameter limits. Unless otherwise specified herein, the electrical performance characteristics and post irradiation parameter limits are as specified in table I and shall apply over the full ambient operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are defined in table I.

3.5 Marking. The part shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's PIN may also be marked as listed in MIL-HDBK-103. For packages where marking of the entire SMD PIN number is not feasible due to space limitations, the manufacturer has the option of not marking the "5962-" on the device. For RHA product using this option, the RHA designator shall still be marked. Marking for device classes Q and V shall be in accordance with MIL-PRF-38535. Marking for device class M shall be in accordance with MIL-PRF-38535, appendix A.

3.5.1 Certification/compliance mark. The certification mark for device classes Q and V shall be a "QML" or "Q" as required in MIL-PRF-38535. The compliance mark for device class M shall be a "C" as required in MIL-PRF-38535, appendix A.

3.6 Certificate of compliance. For device classes Q and V, a certificate of compliance shall be required from a QML-38535 listed manufacturer in order to supply to the requirements of this drawing (see 6.6.1 herein). For device class M, a certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in MIL-HDBK-103 (see 6.6.2 herein). The certificate of compliance submitted to DSCC-VA prior to listing as an approved source of supply for this drawing shall affirm that the manufacturer's product meets, for device classes Q and V, the requirements of MIL-PRF-38535 and herein or for device class M, the requirements of MIL-PRF-38535, appendix A and herein.

3.7 Certificate of conformance. A certificate of conformance as required for device classes Q and V in MIL-PRF-38535 or for device class M in MIL-PRF-38535, appendix A shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change for device class M. For device class M, notification to DSCC-VA of change of product (see 6.2 herein) involving devices acquired to this drawing is required for any change as defined in MIL-PRF-38535, appendix A.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Reference voltage	V_{REF}	$V_{CONTROL}$ = 2.7 V, V_{POWER} = 2.0 V, V_{ADJ} = 0 V, I_{LOAD} = 10 mA	1	01	1.243	1.257	V
		$V_{CONTROL}$ = 2.7 V to 12 V, V_{POWER} = 1.75 V to 5.5 V, I_{LOAD} = 10 mA to 6 A, V_{ADJ} = 0 V	1,2,3		1.237	1.263	
		$V_{CONTROL}$ = 2.7 V, V_{POWER} = 2.0 V, V_{ADJ} = 0 V, I_{LOAD} = 10 mA	1	02	1.243	1.257	
		$V_{CONTROL}$ = 2.7 V to 12 V, V_{POWER} = 2.75 V to 5.5 V, I_{LOAD} = 10 mA to 10 A, V_{ADJ} = 0 V	1,2,3		1.237	1.263	
		V_{IN} = 4.25 V, 1/ I_{LOAD} = 10 mA	1	03	1.238	1.266	
		2.75 V ≤ V_{IN} ≤ 7.0 V, 1/ I_{LOAD} = 5.0 A	1,2,3		1.20	1.275	
Line regulation	V_{RLINE}	$V_{CONTROL}$ = 2.5 V to 12 V, V_{POWER} = 3 V to 5.5 V, I_{LOAD} = 1.0 mA	1,2,3	01		3	mV
		$V_{CONTROL}$ = 2.5 V to 12 V, V_{POWER} = 1.75 V to 5.5 V, I_{LOAD} = 10 mA		02		3	
		2.75 V ≤ V_{IN} ≤ 7 V, 2/ I_{LOAD} = 10 mA		03		8.5	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Load regulation	V_{RLOAD}	$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.1 V, I_{LOAD} = 10 mA to 6 A	1,2,3	01		5	mV
		$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.75 V, I_{LOAD} = 10 mA to 10 A		02		10	
		V_{IN} = 4.25 V, 1/ 2/ 10 mA $\le I_{LOAD} \le$ 5 A, cases M and U	1	03		24	
		V_{IN} = 4.25 V, case T, 1/ 2/ 10 mA $\le I_{LOAD} \le$ 5 A				17	
		V_{IN} = 4.25 V, 1/ 2/ 10 mA $\le I_{LOAD} \le$ 5 A, cases M and U	2,3			34	
		V_{IN} = 4.25 V, case T, 1/ 2/ 10 mA $\le I_{LOAD} \le$ 5 A				24	
Minimum load current	I_{LMIN}	$V_{CONTROL}$ = 5 V, 3/ V_{POWER} = 3.3 V, V_{ADJ} = 0 V	1,2,3	01,02		10	mA
		2.75 V $\le V_{IN} \le$ 7.0 V 4/		03		10	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Control pin current	I_{CTRL}	$V_{CONTROL}$ = 2.75 V, 5/ V_{POWER} = 2.05 V, I_{LOAD} = 6 A	1,2	01		120	mA
			3			130	
		$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.75 V, I_{LOAD} = 10 A	1,2,3	02		170	
Adjust pin current	I_A	$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.05 V, I_{LOAD} = 10 mA, V_{ADJ} = 0 V	1	01		120	µA
		$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.05 V, I_{LOAD} = 10 mA, V_{ADJ} = 0 V	1	02		120	
		V_{IN} = 4.25 V, I_{LOAD} = 10 mA	1,2,3	03		120	
		2.75 V ≤ V_{IN} ≤ 7.0 V, 6/ 10 mA ≤ I_{LOAD} ≤ 5.0 A				5.0	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Current limit	I_L	$V_{CONTROL}$ = 2.75 V, V_{POWER} = 2.05 V, ΔV_{OUT} = 100 mV	1	01	7.1		A
			2,3		6.6		
		$V_{CONTROL}$ = 2.75 V, V_{POWER} =2.75 V, ΔV_{OUT} = 100 mV, T_J = +25°C	1	02	10.1		
		$V_{CONTROL}$ = 2.75 V, V_{POWER} =2.75 V, ΔV_{OUT} = 100 mV, T_J = +125°C, T_J = -55°C	2,3		10.1		
		V_{IN} = 6.75 V	1,2,3	03	5.0		
Dropout voltage	V_{DO}	ΔV_{REF} = 1 %, 7/ I_{LOAD} = 5 A	1,2,3	03		1.4	V
Quiescent current	I_Q	V_{IN} = 5 V	1,2,3	03		13	mA
Minimum $V_{CONTROL}$		V_{POWER} = 3.3 V, I_{LOAD} = 7 A	1,2	01		1.33	V
		V_{POWER} = 3.3 V, I_{LOAD} = 6 A	3			1.35	
		V_{POWER} = 2.75 V, I_{LOAD} = 10 A	1,2,3	02		1.35	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Minimum V_{POWER}		$V_{CONTROL}$ = 2.75 V,	1	01		0.62	V
		I_{LOAD} = 7 A	2			0.80	
		$V_{CONTROL}$ = 2.75 V, I_{LOAD} = 6 A	3			0.80	
		$V_{CONTROL}$ = 2.75 V, I_{LOAD} = 10 A, T_J = +25°C	1	02		0.85	
		$V_{CONTROL}$ = 2.75 V, I_{LOAD} = 10 A, T_J = +125°C	2			0.98	
		$V_{CONTROL}$ = 2.75 V, I_{LOAD} = 10 A, T_J = -55°C	3			0.98	
Ripple rejection	ΔV_{IN} / ΔV_{OUT}	$V_{CONTROL}$ = 5 V(AVG), V_{POWER} = 5 V(AVG), V_{RIPPLE} = 1 V_{PP}, I_{LOAD} = 4 A, f = 120 Hz	4	01	60		dB
		$V_{CONTROL}$ = 5 V(AVG), V_{POWER} = 5 V(AVG), V_{RIPPLE} = 1 V_{PP}, f_{RIPPLE} = 120 Hz, I_{LOAD} = 4 A		02	60		
		V_{IN} = 4.25 V, C_{OUT} = 100 µF, f = 120 Hz, I_{LOAD} = 5 A	4,5,6	03	60	200	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Thermal regulation	V_{REG}	V_{POWER} = 5.0 V, I_{LOAD} = 7 A, pulse width = 30 ms, $P_D \ge 20$ W	4	01		0.02	%/W
		V_{POWER} = 5.0 V, I_{LOAD} = 10 A, pulse width = 30 ms, $P_D \ge 20$ W		02		0.02	
		V_{IN} = 7.0 V, I_{LOAD} = 5 A, pulse width = 30 ms, P_D = 27.2 W		03		0.02	

1/ Low duty cycle pulse testing with Kelvin sense connections is required in order to maintain accurate data. Load regulation and output voltage are measured at a constant junction temperature.

2/ Line load regulation are guaranteed up to maximum power dissipation. Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/output voltage range.

3/ The minimum load current is minimum current required to maintain regulation. Normally the current in the resistor divider used to set the output voltage is selected to meet the minimum load current requirement.

4/ Minimum load current is defined as the minimum current required at the output in order for the output voltage to maintain regulation. The resistor values selected for the voltage divider automatically maintains this current.

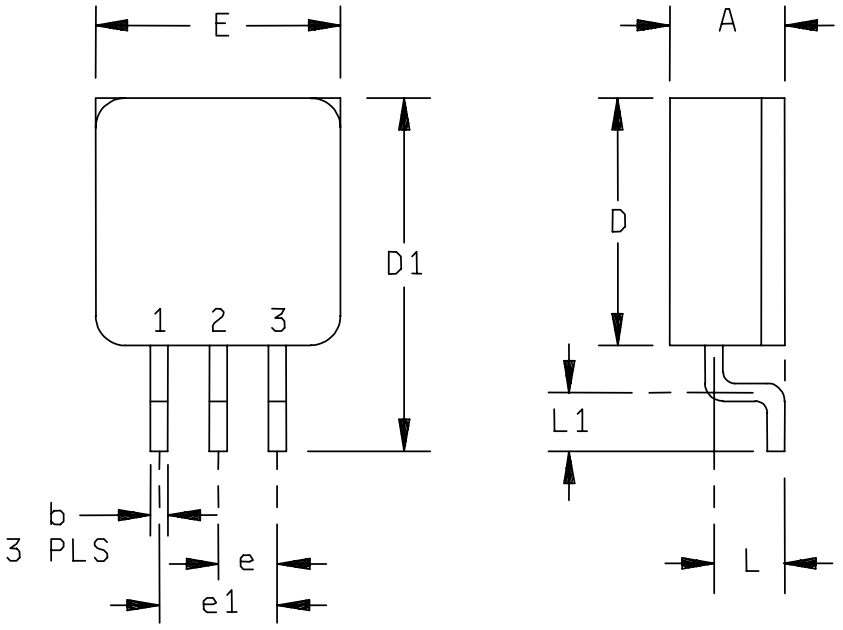
5/ The control pin current is the drive current required for the output transistor. The control pin current is approximately 0.01 % output current. The minimum value is equal to quiescent current to the device.

6/ $I_{FULL\ LOAD}$ is defined as the maximum value of the output load current as a function of input-to-output voltage. $I_{FULL\ LOAD}$ is equal to 5 A for device type 03. Device type 03 has a constant current limit with changes in input-to-output voltage.

7/ For device type 02, dropout is caused by either minimum control voltage or minimum power voltage. Both parameters are specified with respect to the output voltage. The specifications represent the minimum input/output voltage required to maintain 1% regulation.

For device type 03, dropout voltage is defined as the minimum differential voltage between V_{IN} and V_{OUT} required to maintain regulation at V_{OUT}. It is measured when the output voltage drops 1 % below its nominal value.

Case U



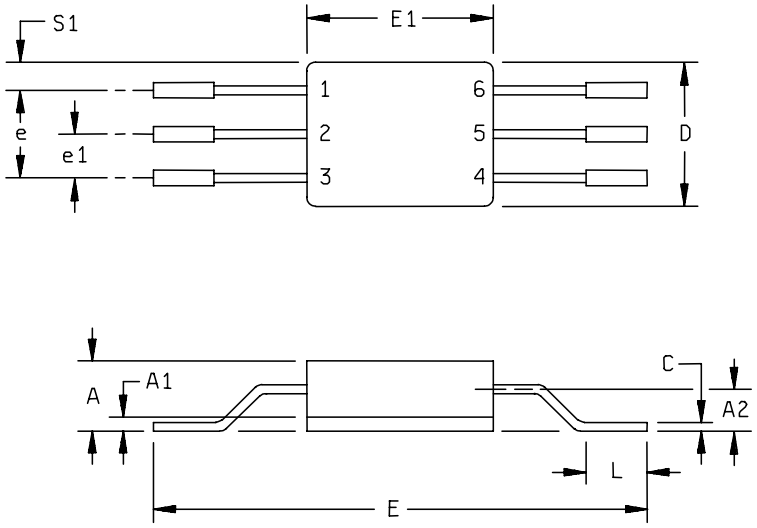
Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	.190	.200	4.826	5.08
b	.250	.035	0.635	0.889
D	.410	.430	10.41	10.92
D1	.580	.610	14.73	15.49
e	---	.100	---	2.54
e1	---	.200	---	5.08
E	.410	.420	10.41	10.67
L1	.090	.110	2.29	2.79
L	.115	.125	2.92	3.18
N	3		3	

NOTE:

The U.S. government preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

FIGURE 1. Case outline.

Case X



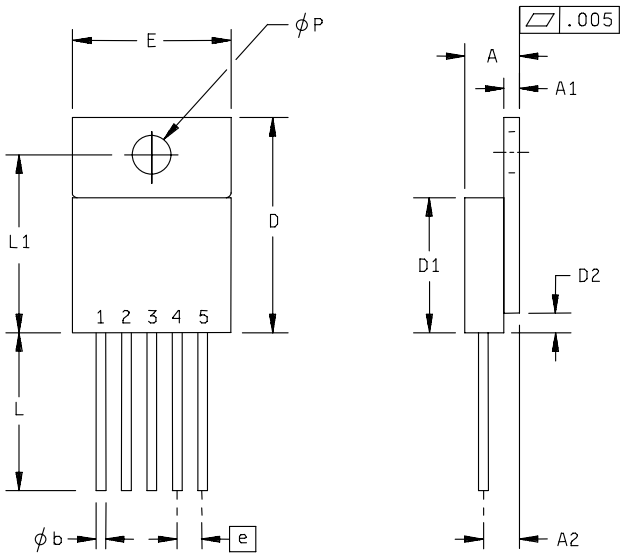
Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	---	.240	---	6.096
A1	---	.040	---	1.016
A2	---	.140	---	3.556
C	---	.035	---	0.889
D	---	.690	---	17.526
E	---	1.40	---	35.56
E1	---	.535	---	13.589
e	---	.400	---	10.16
e1	---	.200	---	5.08
L	---	.160	---	4.064
S1	---	.145	---	3.683
N	6		6	

NOTE:

The U.S. government preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

FIGURE 1. Case outline – continued.

Case Y

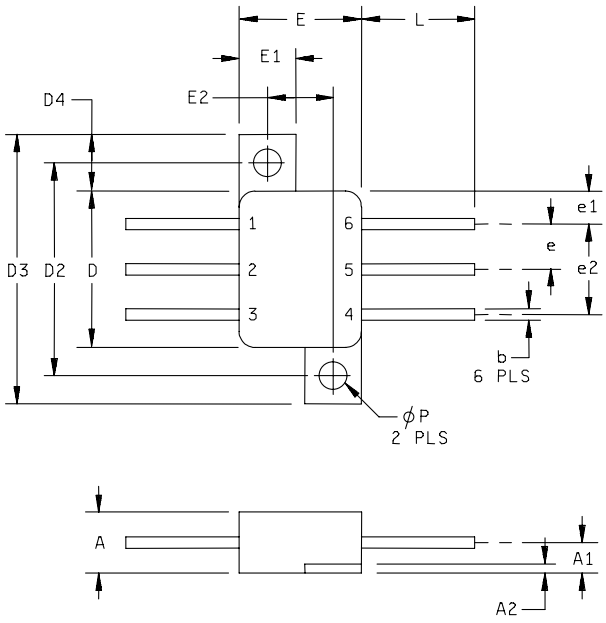


Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	.240	.270	6.096	6.858
A1	.035	.045	0.889	1.143
A2	---	.140	---	3.556
ϕb	.025	.035	0.635	0.889
D	.815	.835	20.701	21.209
D1	.530	.550	13.462	13.97
D2	---	.092	---	2.3368
e	.100	TYP	2.54	TYP
E	.685	.695	17.399	17.653
L	.500	.750	12.70	19.05
L1	.697	.707	17.7038	17.9578
ϕP	.155	.165	3.937	4.191
N	5		5	

NOTE:
The U.S. government preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

FIGURE 1. Case outline – continued.

Case Z



Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	---	.270	---	6.858
A1	---	.140	---	3.556
A2	.035	.045	0.889	1.143
b	.035	.045	0.889	1.143
D	.685	.695	17.399	17.653
D2	---	.940	---	23.876
D3	---	1.190	---	30.226
D4	---	.250	---	6.35
e	---	.200	---	5.08
e1	---	.145	---	3.810
e2	---	.400	---	10.16
E	.530	.550	13.462	13.970
E1	---	.250	---	6.35
E2	---	.285	---	7.239
L	.500	---	12.700	---
ϕP	---	.125	---	3.175
N	6		6	

NOTE:
The U.S. government preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

FIGURE 1. Case outline – continued.

Device types	01		02		03		
Case outlines	X	Y	X	Z	M	T	U
Terminal number	Terminal symbol						
1	ADJUST	SENSE	ADJUST	ADJUST	V_{OUT}	ADJ	ADJ
2	V_{OUT}	ADJUST	NC	NC	V_{IN}	V_{OUT}	V_{OUT}
3	$V_{CONTROL}$	V_{OUT}	SENSE	SENSE	ADJ	V_{IN}	V_{IN}
4	V_{POWER}	$V_{CONTROL}$	$V_{CONTROL}$	$V_{CONTROL}$	---	---	---
5	NC	V_{POWER}	V_{OUT}	V_{OUT}	---	---	---
6	SENSE	---	V_{POWER}	V_{POWER}	---	---	---

FIGURE 2. Terminal connections.

3.9 Verification and review for device class M. For device class M, DSCC, DSCC's agent, and the acquiring activity retain the option to review the manufacturer's facility and applicable required documentation. Offshore documentation shall be made available onshore at the option of the reviewer.

3.10 Microcircuit group assignment for device class M. Device class M devices covered by this drawing shall be in microcircuit group number 52 (see MIL-PRF-38535, appendix A).

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. For device classes Q and V, sampling and inspection procedures shall be in accordance with MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein. For device class M, sampling and inspection procedures shall be in accordance with MIL-PRF-38535, appendix A.

4.2 Screening. For device classes Q and V, screening shall be in accordance with MIL-PRF-38535, and shall be conducted on all devices prior to qualification and technology conformance inspection. For device class M, screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection.

4.2.1 Additional criteria for device class M.

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, D, or E. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015.

(2) T_A = +125°C, minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein.

4.2.2 Additional criteria for device classes Q and V.

a. The burn-in test duration, test condition and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document revision level control of the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.

b. Interim and final electrical test parameters shall be as specified in table II herein.

c. Additional screening for device class V beyond the requirements of device class Q shall be as specified in MIL-PRF-38535, appendix B.

4.3 Qualification inspection for device classes Q and V. Qualification inspection for device classes Q and V shall be in accordance with MIL-PRF-38535. Inspections to be performed shall be those specified in MIL-PRF-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

4.4 Conformance inspection. Technology conformance inspection for classes Q and V shall be in accordance with MIL-PRF-38535 including groups A, B, C, D, and E inspections and as specified herein. Quality conformance inspection for device class M shall be in accordance with MIL-PRF-38535, appendix A and as specified herein. Inspections to be performed for device class M shall be those specified in method 5005 of MIL-STD-883 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

4.4.1 Group A inspection.

a. Tests shall be as specified in table II herein.

b. Subgroups 7, 8, 9, 10, and 11 in table I, method 5005 of MIL-STD-883 shall be omitted.

TABLE II. Electrical test requirements.

Test requirements	Subgroups (in accordance with MIL-STD-883, method 5005, table I)	Subgroups (in accordance with MIL-PRF-38535, table III)	
	Device class M	Device class Q	Device class V
Interim electrical parameters (see 4.2)	1	1	1
Final electrical parameters (see 4.2)	1,2,3 1/	1,2,3 1/	1,2,3 1/
Group A test requirements (see 4.4)	1,2,3,4,5,6 2/	1,2,3,4,5,6 2/	1,2,3,4,5,6 2/
Group C end-point electrical parameters (see 4.4)	1	1	1
Group D end-point electrical parameters (see 4.4)	1	1	1
Group E end-point electrical parameters (see 4.4)	---	---	---

1/ PDA applies to subgroup 1.
2/ Subgroups 4, 5, and 6 are guaranteed by design.

4.4.2 Group C inspection. The group C inspection end-point electrical parameters shall be as specified in table II herein.

4.4.2.1 Additional criteria for device class M. Steady-state life test conditions, method 1005 of MIL-STD-883:

a. Test condition A, B, C, D, or E. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

b. T_A = +125°C, minimum.

c. Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.4.2.2 Additional criteria for device classes Q and V. The steady-state life test duration, test condition and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The test circuit shall be maintained under document revision level control by the device manufacturer's TRB in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

4.4.3 Group D inspection. The group D inspection end-point electrical parameters shall be as specified in table II herein.

4.4.4 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.5 herein).

a. End-point electrical parameters shall be as specified in table II herein.

b. For device classes Q and V, the devices or test vehicle shall be subjected to radiation hardness assured tests as specified in MIL-PRF-38535 for the RHA level being tested. For device class M, the devices shall be subjected to radiation hardness assured tests as specified in MIL-PRF-38535, appendix A for the RHA level being tested. All device classes must meet the post irradiation end-point electrical parameter limits as defined in table I at T_A = +25°C ±5°C, after exposure, to the subgroups specified in table II herein.

c. When specified in the purchase order or contract, a copy of the RHA delta limits shall be supplied.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.1.1 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor prepared specification or drawing.

6.1.2 Substitutability. Device class Q devices will replace device class M devices.

6.2 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished using DD Form 1692, Engineering Change Proposal.

6.3 Record of users. Military and industrial users should inform Defense Supply Center Columbus when a system application requires configuration control and which SMD's are applicable to that system. DSCC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronic devices (FSC 5962) should contact DSCC-VA, telephone (614) 692-0544.

6.4 Comments. Comments on this drawing should be directed to DSCC-VA , Columbus, Ohio 43216-5000, or telephone (614) 692-0547.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535 and MIL-HDBK-1331.

6.6 Sources of supply.

6.6.1 Sources of supply for device classes Q and V. Sources of supply for device classes Q and V are listed in QML-38535. The vendors listed in QML-38535 have submitted a certificate of compliance (see 3.6 herein) to DSCC-VA and have agreed to this drawing.

6.6.2 Approved sources of supply for device class M. Approved sources of supply for class M are listed in MIL-HDBK-103. The vendors listed in MIL-HDBK-103 have agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DSCC-VA.

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 03-11-24

Approved sources of supply for SMD 5962-03237 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38535 during the next revision. MIL-HDBK-103 and QML-38535 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DSCC-VA. This bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535.

Standard microcircuit drawing PIN 1/	Vendor CAGE number	Vendor similar PIN 2/
5962-0323701MXA	69210	OM7580ASMM
5962-0323701MYA	69210	OM7580ASCM
5962-0323702MXA	69210	OM7581SMM
5962-0323702MZA	69210	OM7581SCM
5962-0323703MMA	69210	OM7585ANMM
5962-0323703MTA	69210	OM7585ASTM
5962-0323703MUA	69210	OM7585ASRM

1/ The lead finish shown for each PIN representing a hermetic package is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed contact the vendor to determine its availability.

2/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

Vendor CAGE number	Vendor name and address
69210	International Rectifier 205 Crawford Street Leominster, MA 01453-2353